

What is claimed is:

- Subj* 2  
4
1. A disk drive comprising:  
a drive housing; and  
an asymmetrical storage disk rotatably coupled to the drive housing.
  2. The disk drive of claim 1 wherein the storage disk includes a first side region, a spaced apart second side region and a body region that is positioned between the side regions, the side regions being asymmetrical relative to the body region.
  3. The disk drive of claim 2 wherein the first side region is adapted to store data, and the second side region is not adapted to store data.
  4. The disk drive of claim 2 wherein the first side region includes a plurality of servo sectors, and the second side region does not include any servo sectors.
  5. The disk drive of claim 2 wherein the first side region includes a magnetic layer, and the second side region does not include a magnetic layer.
  6. The disk drive of claim 2 wherein the first side region includes a first layer and the second side region includes a second layer, the first layer and the second layer being substantially equidistant from the body region, wherein the first layer is formed from a material having a first composition, and the second layer is formed from material having a second composition that is different from the first composition.
  7. The disk drive of claim 2 wherein the first side region has a mass that is different than a mass of the second side region.

*Subj 72*

8. The disk drive of claim 2 wherein the first side region has a thickness that is different than a thickness of the second side region.

2 9. The disk drive of claim 2 wherein the first side region has a density that is different than a density of the second side region.

2 10. The disk drive of claim 2 wherein the second side region includes a stiffener that increases the rigidity of the storage disk.

2 11. The disk drive of claim 10 wherein the stiffener extends substantially radially from near an inner diameter of the storage disk.

2 12. The disk drive of claim 11 wherein the second side region includes an outer flat section and the stiffener is raised at least approximately 0.001 millimeters above the outer flat section.

13. The disk drive of claim 10 wherein the stiffener is tubular shaped.

2 14. The disk drive of claim 10 wherein the stiffener redirects fluid within the drive housing during rotation of the storage disk.

2 15. The disk drive of claim 10 wherein the stiffener is substantially arc-shaped.

2 16. The disk drive of claim 2 wherein the storage disk includes a plurality of stiffeners that increase the rigidity of the storage disk.

2 17. The disk drive of claim 16 wherein the second side region includes an outer flat section, and wherein at least one of the stiffeners is positioned below the outer flat section.

*Sub A* 2  
*Cinx*

18. The disk drive of claim 16 wherein the second side region includes an outer flat section and wherein each of the stiffeners is raised above the outer flat region.

2

19. The disk drive of claim 2 wherein the second side region includes a damping layer that dampens vibration of the storage disk during rotation, and , wherein the first side region does not include a damping layer.

20. The disk drive of claim 19 wherein the damping layer includes a viscoelastic material.

21. The disk drive of claim 19 wherein the damping layer includes a material that is applied with an adhesive.

22. The disk drive of claim 19 wherein the second side region includes a constraining layer that constrains the damping layer, wherein the damping layer is positioned between the constraining layer and the body region.

23. The disk drive of claim 2 wherein the second side region includes an outer flat section and a plurality of projections that extend above the outer flat section.

24. The disk drive of claim 23 wherein at least one of the projections is raised above the outer flat region by at least approximately 0.001 millimeters.

25. The disk drive of claim 2 wherein the second side region includes a supplemental layer that balances the storage disk.

26. The disk drive of claim 25 wherein the supplemental layer has a non-uniform thickness.

27. The disk drive of claim 2 wherein the second side region includes  
2 an adsorption layer that adsorbs impurities within the drive housing.

28. The disk drive of claim 27 wherein the adsorption layer includes a  
2 chemical adsorbent.

29. The disk drive of claim 27 wherein the second side region  
2 includes a diffusion layer that is positioned adjacent to the adsorption layer, the  
diffusion layer being adapted to filter out unwanted particles within the drive  
4 housing.

30. The disk drive of claim 1 wherein the storage disk includes a body  
region having a first body side and an opposed second body side, wherein one  
of the body sides is exposed.

2           31. A storage disk for a disk drive, the storage disk comprising:

4            a body region;

4            a first side region secured to the body region; and

6            a substantially opposed second side region secured to the body

6           region;

6           wherein the side regions are asymmetrical relative to the body

6           region.

32. The storage disk of claim 31 wherein the first side region is  
2 adapted to store data, and the second side region is not adapted to store data.

33. The storage disk of claim 31 wherein the first side region includes  
2 a plurality of servo sectors, and the second side region does not include any  
servo sectors.

34. The storage disk of claim 31 wherein the first side region includes  
2 a magnetic layer, and the second side region does not include a magnetic layer.

*Sub X*  
2  
4  
6

35. The storage disk of claim 31 wherein the first side region includes a first layer and the second side region includes a second layer, the first layer and the second layer being substantially equidistant from the body region, wherein the first layer is formed from a material having a first composition, and the second layer is formed from material having a second composition that is different from the first composition.

36. The storage disk of claim 31 wherein the first side region has a mass that is different than a mass of the second side region.

37. The storage disk of claim 31 wherein the first side region has a thickness that is different than a thickness of the second side region.

38. The storage disk of claim 31 wherein the first side region has a density that is different than a density of the second side region.

39. The storage disk of claim 31 wherein the second side region includes a stiffener that increases the rigidity of the storage disk.

40. The storage disk of claim 39 wherein the second side region includes an outer flat section, and wherein the stiffener extends away from the outer flat section.

41. The storage disk of claim 40 wherein the stiffener extends away from the outer flat section at least approximately 0.001 millimeters.

42. The storage disk of claim 39 wherein the stiffener extends substantially radially from an inner diameter of the second side region.

43. The storage disk of claim 39 wherein the stiffener is tubular shaped.

*(S) (X)*

2 44. The storage disk of claim 39 wherein the stiffener redirects fluid during rotation of the storage disk.

2 45. The storage disk of claim 39 wherein the stiffener is substantially arc-shaped.

2 46. The storage disk of claim 31 wherein the second side region includes a plurality of spaced apart stiffeners that increase the rigidity of the second side region.

2 47. The storage disk of claim 46 wherein the second side region includes an outer flat section, and wherein at least one of the stiffeners is positioned below the outer flat section.

2 48. The storage disk of claim 46 wherein the second side region includes an outer flat section and each of the stiffeners extends away from the outer flat section.

2 49. The storage disk of claim 31 wherein the second side region includes a damping layer that dampens vibration of the storage disk, and wherein the first side region does not include a damping layer.

2 50. The storage disk of claim 49 wherein the damping layer includes a viscoelastic material.

2 51. The storage disk of claim 49 wherein the second side region includes a constraining layer that constrains the damping layer, wherein the damping layer is positioned between the constraining layer and the body region.

- Subj 1*
52. The storage disk of claim 31 wherein the second side region  
2 includes an outer flat region and a plurality of projections that extend away from  
the outer flat region.
53. The storage disk of claim 52 wherein at least one of the  
2 projections extends away from the outer flat region at least approximately 0.001  
millimeters.
54. The storage disk of claim 31 wherein the second side region  
2 includes a supplemental layer that balances the storage disk during rotation of  
the storage disk.
55. The storage disk of claim 54 wherein the supplemental layer has a  
2 non-uniform thickness.
56. The storage disk of claim 31 wherein the second side region  
2 includes an adsorption layer that adsorbs impurities.
57. The storage disk of claim 56 wherein the adsorption layer includes  
2 a chemical adsorbent.
58. The storage disk of claim 56 wherein the second side region  
2 includes a diffusion layer that is positioned adjacent to the adsorption layer, the  
diffusion layer being adapted to filter out unwanted particles.
59. The storage disk of claim 31 wherein the first side region has a  
2 first shape and the second side region has a second shape, and wherein the  
first shape is different than the second shape.
60. A disk drive including a drive housing and the storage disk of  
2 claim 31.

*Subj X U*

2 61. A method for making a disk drive, the method comprising the  
steps of:  
4 providing a drive housing;  
providing an asymmetrical storage disk; and  
coupling the asymmetrical storage disk to the drive housing.

2 62. The method of claim 61 wherein the step of providing an  
asymmetric storage disk includes providing a first side region, providing a  
4 spaced apart second side region and providing a body region that is positioned  
between the side regions, the side regions being asymmetrical relative to the  
body region.

2 63. The method of claim 61 wherein the step of providing an  
asymmetric storage disk includes providing a first side region that is adapted to  
4 store data, and the step of providing a second side region that is not adapted to  
store data.

2 64. The method of claim 61 wherein the step of providing an  
asymmetric storage disk includes providing a first side region that includes a  
4 magnetic layer and providing a second side region that does not include a  
magnetic layer.

2 65. The method of claim 61 wherein the step of providing an  
asymmetrical storage disk includes providing a first side region that includes a  
4 first layer, providing a second side region that includes a second layer, and  
providing a body region that is positioned between the side regions, wherein the  
first layer and the second layer are substantially equidistant from the body  
6 region, and wherein the first layer is formed from a material having a first  
composition, and the second layer is formed from material having a second  
8 composition that is different from the first composition.

66. The method of claim 61 wherein the step of providing an  
2 asymmetrical storage disk includes providing a first side region and providing a  
second side region, the first side region having a mass that is different than a  
4 mass of the second side region.

67. The method of claim 61 wherein the step of providing an  
2 asymmetrical storage disk includes providing a first side region and providing a  
second side region, the first side region having a thickness that is different than a  
4 thickness of the second side region.

68. The method of claim 61 wherein the step of providing an  
2 asymmetrical storage disk includes providing a first side region and providing a  
second side region, the first side region having a density that is different than a  
4 density of the second side region.

69. The method of claim 61 wherein the step of providing an  
2 asymmetrical storage disk includes providing a side region that includes a  
stiffener that increases the rigidity of the storage disk.

70. The method of claim 61 wherein the step of providing an  
2 asymmetrical storage disk includes providing a side region that includes a  
stiffener that redirects fluid within the drive housing during rotation of the  
4 storage disk.

71. The method of claim 61 wherein the step of providing an  
2 asymmetrical storage disk includes the step of providing a side region that  
includes a damping layer that dampens vibration during rotation of the storage  
4 disk.

72. The method of claim 71 wherein the step of providing a side  
2 region includes the step of constraining the damping layer with a constraining  
layer.

73. The method of claim 61 wherein the step of providing an  
2 asymmetrical storage disk includes the step of providing a side region that  
includes a supplemental layer that balances the storage disk.

74. The method of claim 61 wherein the step of providing an  
2 asymmetrical storage disk includes the step of providing a side region that  
includes an adsorption layer that adsorbs impurities within the drive housing.

75. The method of claim 74 wherein the step of providing a side  
2 region includes the step of positioning a diffusion layer adjacent to the  
4 adsorption layer, the diffusion layer being adapted to filter out unwanted  
particles within the drive housing.

76. The method of claim 61 wherein the step of providing an  
2 asymmetric storage disk includes providing a body region and only a first side  
region secured to the body region.

77.. A method of manufacturing an asymmetrical storage disk for a  
2 disk drive, the method comprising the steps of:

abutting a first body region against a second body region so that a  
4 portion of each body region is exposed; and  
6 adding a layer of material onto at least one of the exposed  
portions of the body regions.

78. The method of claim 77 further comprising the step of separating  
2 the body regions after the material is added.

79. The method of claim 77 wherein the step of adding a layer of  
2 material includes sputter-depositing the material.

80. The method of claim 77 wherein the step of adding a layer of material includes depositing the material onto each body region.

Add A17